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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,739	09/30/2003	William B. Boyle	K35A1281	7957
35219	7590	04/12/2006	EXAMINER	
WESTERN DIGITAL TECHNOLOGIES, INC.			SCHLIE, PAUL W	
ATTN: SANDRA GENUA			ART UNIT	
20511 LAKE FOREST DR.			PAPER NUMBER	
E-118G			2186	
LAKE FOREST, CA 92630			DATE MAILED: 04/12/2006	

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/676,739	Applicant(s) BOYLE ET AL.	
	Examiner Paul W. Schlie	Art Unit 2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-14 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) 2, 15 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-14 and 16-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/30/03 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1, 3-14, 16-19 have been examined, with claims 1, 3, 6, 14, 16 and 18 being amended, and claims 2, 15 and 20 being withdrawn.

Response to Arguments

2. Applicant's arguments filed 3/23/06 have been fully considered but are not persuasive and/or moot based upon their correspondingly amended rejection.

As per the rejection of claims 1 (previously 1-2), 4-14 (previously 4-15) and 17-19 (previously 17-20) under 35 U.S.C. 35 102(b), in particular with respect to amended claim 1 effectively comprising the limitation: upon a request for data cached within a first cache-line segment, filling a second cache-line segment within the same segment group with data logically sequential to that cached within said first cache-line segment, if said second cache-line segment had hosted the most recent previous request for data; as this is considered logically equivalent to reutilizing a limited subset limit of cache-lines containing previously pre-fetched data (i.e. selecting the victim within a limited subset/group implicitly utilizing LRU selection) as taught by Arimili et al. (see abstract lines 17-21 and column 10 lines 65-67) having a pre-fetch set limit of 2 cache lines (thereby upon access to a first cache line pre-fetched resulting from a sequentially preceding access to a second cache line, said second cache line would inherently have hosted a previously cached immediately preceding sequential access to said first cache line) and a cache-line segment is defined as being effectively functionally equivalent to that traditionally considered a cache-line within the context of the applicant's disclosure, as

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all elements of each are cached upon the request of any element within their respective boundary; the rejection is sustained.

With respect to claims 3 and 16 rejected under 35 U.S.C. 103, as the rejection of these claim's parent claims are sustained, in absents of any further arguments, this rejection is correspondingly sustained, although further clarified.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4-14 (previously 4-15) and 17-19 (previously 17-20) are rejected under 35 U.S.C. 102(b) as being anticipated by Arimilli et al. (6,360,299).

As per claims 1, 4-14, and 17-19, Arimilli et al. teaches a system that may comprise a portion of a hard-disk control system, comprising: an interconnected processor, DRAM memory, and a cache system (see figure 3, and column 1 lines 38-46), and further comprising the methods to: receive a current data request from a processor; provide the requested data to the processor if cached within a first line-cache segment within a group of similar line-caches, or otherwise fill a first line-cache segment selected from the least-recently-used line-cache segment groups or member of particular line-cache segment group (see column 10 lines 4-6 in combination with lines 65-67); automatically fill a subsequent second segment within the same group composed of an arbitrary number of segments (see abstract lines 17-21), each typically

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larger than the word size of the processor (see column 2 lines 33-35), which was most recently previously accessed relative to the most current request with corresponding sequentially accessed data (column 10 lines 27-28).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arimilli (6,360,299) in further in view of Miura et al. (5,345,560).

As per claims 3 and 16, being dependant on claims 1 and 14 (previously 2 and 15) as taught by Arimilli et al. above, does not explicitly teach that a value may be sequentially pre-fetched only if the current requested data is itself sequential to the most recently previous requested data. However Miura et al. teaches that a pre-fetch may be enabled by subtracting the previously requested address from the current requested address (see figure 8) thereby effectively determining if the current address was sequential to the previously requested address. Thereby it would be obvious to one of ordinary skill in the art to utilize the method taught by Miura et al. with that taught by Arimilli et al. relevant to the claims for the benefit of enabling the estimation of the likelihood of a subsequent request being sequential based upon the current request being sequential, in attempt to maximize pre-fetch efficiency.

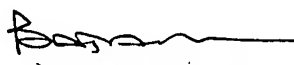
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Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul W. Schlie whose telephone number is 571-272-6765. The examiner can normally be reached on Mon-Thu 8:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim can be reached on 517-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


PIERRE BATAILLE
PRIMARY EXAMINER
4/6/06